DOCUMENT RESUME

ED 049 168 SP 004 776

AUTHOR Sandefur, J. T.
TITLE Changing Teacher Behavior: A Description of Three Experimental Programs.
PUB DATE 30 Mar 71
NOTE 41p.; Speech made at the North Central Assoc. of Colleges and Secondary Schools annual meeting, Chicago, March 1971

EDRS PRICE EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS *Behavior Change, Child Psychology, *Classroom Observation Techniques, Elementary School Teachers, Secondary School Teachers, *Teacher Behavior, *Teacher Education, *Teacher Education Curriculum

ABSTRACT

Three experimental programs were designed to examine whether the present content of teacher education affects the behavior of teachers in the classroom. The first study, "An Experimental Study of Professional Education for Secondary Teachers," conducted between 1965 and 1967, examined the proposition that valid content in teacher education could best be achieved by providing selected laboratory experience and content designed to produce functional behavior. The data obtained from independent observers, student teaching grades, and the Common Examinations section of the National Teacher Examination indicated that the experimental group showed more desirable and less traditional behavior than the control group. The second study, "Teaching Experience as a Modifier of Teaching Behavior," was primarily a follow-up study of the first project and was completed in 1969. It examined the changes in teaching behavior exhibited during student teaching and during the last 3 weeks of the first year of teaching. Results showed that certain teaching behaviors are significantly modified by experience. The third study, "The Integration of Psychoanalytic Child Psychology with Elementary Teacher Education," receives only limited treatment because the final report has not yet been written, and no extensive or specific conclusions can be made from the data presented. (MBM)

ED049168

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEH REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

Changing Teacher Behavior: A Description of Three Experimental Programs

by

J.T. Sandefur, Dean, School of Education and Psychology
Kansas State Teachers College, Emporia

Whether professional courses in teacher education are successful in bringing about desirable changes in the teaching behavior of its students is a much discussed topic. Fred T. Wilhelms stated the problem succinctly in his report on the San Francisco State College Teacher Education Project. He wrote:[1]

> Teacher education, which exists to influence the behavior of teachers . . . should itself be a model in applying what is known about learning and teaching, conceived in terms of the permanent modification of behavior. In actual fact it has not generally been regarded by its students as offering a particularly good learning situation; all too often they have assessed it as dull, banal, wordy and repetitiously theoretical, and out of touch with reality. Furthermore-and this is more truly important-it has not been notably effective in generating the very behavior patterns which constitute its central purpose.

Despite the extent of one's agreement with Wilhelms, it is obvious that in any discussion of teacher education a basic concern emerges, and that is whether the present content of teacher education affects the behavior of teachers in the classroom. That basic concern prompted the initiation of three experimental studies within the School of Education and Psychology at Kansas State Teachers College. The first study, entitled ''An Experimental of Professional Education for Secondary Teachers'' was conducted between 1965 and 1967.[2] The second study was entitled ''Teaching Experience as a

---

[1]Wilhelms, Fred T. ''The San Francisco State College Teacher Education Project.'' The Journal of Teacher Education, 12:209-15, June, 1961.

[2]Sandefur, J.T., and others. ''An Experimental Study of Professional Education for Secondary Teachers.'' Final Report, Cooperative Research Project OE-5-0768. Emporia: Kansas State Teachers College, 1967.

SP004 717

Modifier of Teaching Behavior.'' That study was primarily a follow-up study of the first project and was completed in 1969.[3] The third study[4] dealt with the integration of psychoanalytic child psychology into elementary teacher education programs. The philosophy and teaching methodologies employed in the experimental program were, however, modeled on the first two projects and the data collected were highly relevant to the subject of change in teaching behavior. It was prior to and during the conduct of these studies that it became disappointingly evident that valid research concerning the extent to which professional teacher education affected the teaching behavior of its subjects was virtually nonexistent. The lack of such research, in my opinion, constitutes at the same time both the greatest reproach and the greatest challenge to teacher education. The reproach being that we have not validated the professional content of teacher education, and the challenge is that it yet remains to be done.

The three projects upon which I will report briefly today, and other similar studies are but initial, and even crude, efforts to begin the validation of professional teacher education which has been long overdue. They are not presented as final answers, rather, they are presented in the hope that they provide direction for further research and study.

The first study in changing teacher behavior, called ''An Experimental Study of professional Education for Secondary Teachers,'' relied

---

[3]Sandefur, J.T., and others. ''Teaching Experience as a Modifier of Teaching Behavior.'' Final Report, Cooperative Research Project OE 8-F-027. Emporia: Kansas State Teachers College, 1969.

[4]An unpublished study jointly conducted by Kansas State Teachers College and the Menninger Foundation, Topeka, and sponsored by the Esso Foundation, New York. The Final Report is expected by June 1, 1971.

heavily on three basic assumptions: (1) that there was considerable reason to believe that much of what is now classified as content in teacher education could not be defended as valid content if the criterion for validity were to be defined as the extent in which it affected teacher behavior, (2) that a part of the problem revolves around the inability of educators to identify and organize knowledge related to teaching and learning in a systematic fashion, and (3) that an equally important dimension of the problem concerned the manner in which content and professional experience are integrated during the period of professional preparation.

The primary objective of the study was to examine the proposition that valid content in teacher education, that is, content which affects teacher behavior, could best be achieved by providing selected laboratory experience and content designed to product functional behaviors. Four basic questions were investigated:

1. Whether students enrolled in an experimental teacher education program designed to produce functional behavioral change would achieve as well on the professional content section of the National Teachers Examination as did students who followed a conventional program of professional courses.
2. Whether students enrolled in the experimental program would be rated as more effective at the end of their student teaching by independent observers using the Classroom Observation Record than would students following a more conventional program.
3. Whether the students in the experimental program would display significantly different teaching behavior during their student teaching as measured by independent observers using a system of interaction analysis than would students in a conventional program.

4. Whether grades earned in student teaching would differ significantly between students in the experimental and control groups.

Research Procedures

Basic to the investigation of the questions posed in the study was the development of the experimental program. The criteria for the development of the program were (1) that the content of professional education in the foundational areas of philosophy, psychology, sociology, and anthropology would be integrated into either a problem or a thematic approach, (2) that laboratory experiences of observation and participation would keep pace with the study of content, and (3) that new techniques and media which represented the best that was known about teaching and learning would be used in the presentation of both content and laboratory experiences.

The experimental program which was developed replaced six formal courses of professional education with three "phases" of professional preparation based on a relatively unstructured study of content in conjunction with carefully planned laboratory experiences. Phase I of the program occurred during the first semester of the junior year and was called the "Observation" phase. This phase was based on the assumption that understandings and insights into the nature of the learner were best acquired initially by observation. The observation was accomplished through the use of a system of closed-circuit television and direct observation in classrooms. In addition to the observation, a carefully selected list of readings in the broad area of philosophy, psychology, sociology and anthropology was coordinated with the laboratory experiences. The students met in classes for observation five hours weekly and in seminars two hours weekly to discuss and relate the readings to the laboratory experiences.

The second phase was called the "Participation" phase and occurred during the second semester of the student's junior year. This phase was based on the assumption that after the pre-service teacher had developed certain desirable concepts through observation, they could be further refined and used as foundations for more complex concepts. Moreover, techniques could be developed which were consistent with the student's conceptual orientation through actual participation in instructional situations.

During Phase II, the student spent one hour daily in a high school classroom in his major area of preparation. He was expected to assist the supervising teacher in the planning, preparation, and instruction of the classes whenever possible. In addition to the responsibilities incurred through participation, the student continued with the selected readings and the two weekly seminars.

Phase III of the experimental program was the student teaching phase during which the students spent one-half semester in full-time student teaching in the public schools. During this phase, the students continued reading but the seminars were reduced to approximately five.

The experimental program described was tested against a rather conventional program of teacher education consisting of six courses of twenty semester hours credit. The latter was considered comparable to most programs offered in institutions providing teacher education.

In September 1965, students were assigned to both the experimental and control programs. The criteria for selection required that the student (1) had taken no education courses previously, (2) had an earned grade-point-average of not less than 2.3 on a 4-point scale, and (3) would accept

assignment to either the experimental or control group. One hundred and forty-one students met the criteria and were assigned by a random method. Seventy-one were assigned to the experimental group and 70 to the control group.

During the project, 26 students withdrew for various reasons; thus, 115 remained for whom complete data were obtained. Of these, 62 were in the experimental group and 53 were in the control group.

The burden of the investigation was to determine the extent of behavioral change in those students subjected to the experimental program in comparison to those who followed a conventional teacher education program. With the exception of the National Teachers Examination, all data collected were designed to reveal behavioral characteristics rather than factual information. The data were derived from (1) The Classroom Observation Record, (2) a system of interaction analysis, (3) The National Teachers Examination, and (4) grades earned in student teaching.

Data relevant to the Classroom Observation Record and interaction analysis were obtained by six independent observers who were not connected with the College or the project. The observers held not only the highest degrees in their fields but also positions which required them to demonstrate knowledge about teaching. The observers were trained to administer both the Classroom Observation Record and the 16 category system of interaction analysis. At the conclusion of their training, the observers were found to correlate in their judgments on both instruments at above .80.

The observers made three observational visits to each student of both the experimental and control groups during their student teaching. They attempted to space these visits at three-week intervals. The identify of

the student's assignment to either the experimental or control groups was concealed from the observer who was instructed to enter the classroom when the student teacher was in charge, hold no conversation with the student, observe ten minutes, and to begin the interaction analysis precisely at the eleventh minute and continue through the thirtieth minute. The observer was then to observe the remainder of the period. At the end of the period, the observer was instructed to leave the classroom and complete the Classroom Observation Record immediately.

The Common Examinations of the National Teachers Examinations were administered to both the experimental and control groups on a pre-and-post test basis. The initial testing was administered in October, 1965 and the post-test in January, 1967. Data pertaining to grades earned in student teaching were also collected and analyzed. The data were tested for significance of difference through analysis of variance and t-tests.

Findings

All data were obtained from three sources: (1) independent observers who made (to each student of both the experimental and the control groups) three visits during which time the observer completed a Classroom Observation Record and also conducted a 20-minute session of interaction analysis (the identity of the student's assignment to either the experimental or control group was concealed from the observer to eliminate possible bias); (2) student teaching grades given by public school supervising teachers; and (3) pre- and post-administrations of the Common Examinations section of the National Teacher Examination. Data relevant to the Classroom Observation Record, student teaching grades, and National Teachers Examination have been presented in tables structured to identify the group, mean score, t-ratio, and the level of significance.

A. The Classroom Observation Record

The Classroom Observation Record was an outgrowth of the Teachers Characteristics Study conducted at the University of Texas and supported by the American Council on Education.[6] The Classroom Observation Record required that the observer make judgments on four dimensions of pupil behavior and eighteen dimensions of teacher behavior. The observer's judgments were recorded on a seven-point scale. To avoid problems of definition and semantic difficulties, the observers limited the criteria upon which judgments were made to those descriptive statements of the specific behavior contained in the Glossary. Inter-observer correlation was found to be .90.

A comparison of the means of the teacher behavior ratings on the Classroom Observation Record has been presented in Table I.

---

[6]David G. Ryans, Characteristics of Teachers: Their Description, Comparison, and Appraisal. Washington, D. C.: American Council on Education, 1960. p. 450.

Table I. A comparison of the means of the Teacher Behavior Ratings of The Experimental and Control Groups on the Classroom Observation Record

Teacher Behavior	Mean Score Experimental	Control	t - Ratio	P
Partial - Fair	6.062	5.747	3.531	.001
Autocratic - Democratic	5.266	4.598	4.667	.001
Aloof - Responsive	5.726	5.296	3.761	.001
Restricted - Understanding	5.676	5.290	3.094	.005
Harsh - Kindly	5.870	5.481	3.257	.001
Dull - Stimulating	5.285	4.562	4.761	.001
Stereotyped - Original	4.490	3.870a	4.037	.001
Apathetic - Alert	5.809	5.288	4.545	.001
Unimpressive - Attractive	6.163	5.693	4.618	.001
Evading - Responsible	5.879	5.310	4.479	.001
Erratic - Steady	6.081	5.531	5.443	.001
Excitable - Poised	5.914	5.482	4.053	.001
Uncertain - Confident	5.864	5.282	4.466	.001
Disorganized - Systematic	5.821	5.404	3.421	.001
Inflexible - Adaptable	5.521	5.059	3.588	.001
Pessimistic - Optimistic	5.825	5.471	3.308	.001
Immature - Integrated	5.536	5.107	3.478	.001
Narrow - Broad	4.997	4.675	2.766	.005
Total Teacher Behavior	101.777	93.145	5.393	.001

a. Mean scores below 4.0 describe the teacher behavior listed to the left

The bipolar rating scale used by the observers ranged a continuum from one to seven. A rating from one to three represented a description of the behavioral dimension listed at the left of Table 6 while a rating of five to seven represented the behavior dimension at the right. A rating of four represented a neutral assessment of the dimension. On each of the dimensions of teacher behavior, the observers rated the experimental students higher toward the dimension listed to the right. For example, the experimental students were rated as being more fair, as opposed to partial; more democratic, responsive, understanding, kindly, stimulating, original, alert, attractive, integrated, and broad. On the total teacher behavior, the experimental group received a mean score of 101.777 as compared to a mean score of 93.145 for the control group. This difference was significant at beyond the .001 level.

B. Interaction Analysis

A system of interaction analysis developed by John Hough[7] was used which classified verbal teaching behavior into one of sixteen categories. The categories were the following: (1) Accepts Student Feeling, (2) Praise And Reward, (3) Accepts And Uses Student's Ideas, (4) Teacher Asks Questions, (5) Teacher Answers Student's Questions, (6) Lecture, (7) Corrective Feedback, (8) Requests and Commands, (9) Criticism, (10 and 11) Student Talk, Response And Initiated, (12) Student's Questions, (13) Directed Practice, (14) Contemplation, (15) Teacher Demonstration, and (16) Confusion and Irrelevant Behavior.

---

[7]The sixteen category system shown was developed by John B. Hough and is a modification of Flanders' ten category system of Interaction Analysis. This sixteen category system is described in "An Observation System for Analysis of Classroom Instruction.," a paper read at the American Educational Research Association's National Convention in 1965.

As in the Flanders System, each trained observer wrote the category number of the interaction he had just observed every three seconds or every time the category changed. The observer, writing approximately twenty numbers per minute, recorded the numbers sequentially in a column. The sequence of numbers thus acquired was recorded in pairs in a 16 row by 16 column table or matrix according to the method developed by Flanders.[8] Composite matrices representing three twenty-minute observations for each student were prepared for both the experimental and the control groups.

Originally in the design of the study, it was decided that Student Talk-Response (category 10) would be classified apart from Student Talk-Emitted (Category II). During the observer training session, however, the decision was made to combine these two categories because the observers were unable to distinquish Category 10 from Category 11 with high reliability.

From the composite matrices it was possible to determine the number of tallies and the percentage of time spent in each of the categories by the students of the experimental and the control groups. Table II has presented a comparison of the average number of tallies per student of the experimental and the control groups in each of the 16 categories of teacher behavior.

---

[8]Flanders, Ned A., Teacher Influence, Pupil Attitudes, and Achievement, Cooperative Research Monograph No. 12, Washington, D. C.: U.S. Government Office, 1965.

Table II. A comparison of the mean tallies per student per hour of observation in each of the sixteen categories of teacher behavior.

No.	Category	Mean Tallies Per Student		Difference
		Experimental	Control	
1	Feeling	5.3	7.7	2.4
2	Praise	10.7	9.0	1.7
3	Accepts	147.6	107.3	40.3
4	Asks Questions	95.0	78.7	16.3
5	Answers Questions	48.9	38.7	10.2
6	Lectures	286.2	274.0	12.2
7	Corrective Feedback	9.1	11.3	2.2
8	Directions	63.9	73.9	10.0
9	Criticizes	6.0	6.1	.1
10 and 11	Student Talk	255.7	232.9	24.8
12	Student Questions	39.4	33.1	6.3
13	Directed Practice	177.1	266.8	89.7
14	Silence and Contemplation	38.2	43.0	4.8
15	Demonstration	44.1	27.5	16.6
16	Confusion	10.5	10.7	.2

As has been shown in Table II, there were observable differences in the mean tallies per student in a given category by the experimental and the control groups. For example, the experimental group had 147.6 tallies in Category 3, Accepting and Using the Ideas of Students, as compared to 107.3 for the control group, a difference of 40.3 tallies. The experimental group also spent more time asking questions and answering students' questions. The control group spent more time in directed practice, 266.8 tallies as compared to 177.1 for the experimental group.

Although the investigators had originally intended to make comparison only between the total experimental and the total control groups on the data collected through interaction analysis, the independent observers reported their impression that the specific category was used by a given student was greatly influenced by that student's major teaching field. For example, a teacher of foreign language tended to use more requests and commands than would a teacher in one of the humanities, or that a foreign language teacher lectured more than did a teacher of the practical arts. In order to isolate the effect of the academic area, the experimental data were subjected to an analysis of variance which showed through the F-test the significance of the variation in the use of the sixteen categories of teaching behavior which was attributable to (1) the academic area taught, (2) the experimental and the control programs, and (3) the interaction between the academic area and the experimental treatment.

The academic areas as a source of variance were significant at the .01 level of Categories 2, 7, 8, 10 and 11, 13, and 15. Since the experimental program as a source of variance was significant at the .05 level only in Category 2, the evidence appeared conclusive that the differences in the use of categories between subject field areas outweighed or masked out the differences attributable to the experimental program. Evidence that the experimental program was a significant factor in determining the use of specific categories was provided by an examination of the i/d ratio which was determined by dividing those categories which imply indirect teacher behavior, namely Category 1, Accepts Feeling; Category 2, Praise and Reward; and Category 3, Accepts and Uses Student's Ideas, by those categories

which imply direct teacher behavior, namely Category 7, Corrective Feedback; Category 8, Requests and Commands; and Category 9, Criticism and Justification of Authority. An i/d ratio of 1.0 would indicate that for every indirect teaching behavior, there was a direct teaching behavior. The i/d ratio was significant at the .01 level when the source of variance was the experimental program. Other findings from interactional analysis were:

1. In terms of mean tallies per category, the students of the experimental group tended to use the following categories more frequently than did the students in the control group: (2) Praise, (3) Acceptance and Use of Ideas of Students, (4) Teacher Questions, (5) Answer Questions, (6) Lecture, (10 & 11) Students Talk, (12) Student Questions and (15) Demonstration.
2. In terms of mean tallies per category the control group tended to use the following categories more frequently than did the experimental group: (1) Accept Feeling, (7) Corrective Feedback, (8) Directions, (9) Criticism, (13) Directed Practice, (14) Silence and Contemplation, and (15) Confusion.
3. The academic area taught was more influential in determining the frequency of use of categories 2, Praise and Reward; 7, Corrective Feedback; 8, Requests and Commands; 10 and 11, Student Talk; 13, Directed Practice; and 14, Teacher Demonstration than was the experimental program. The difference of usage of each of these categories attributable to the academic area was found through an analysis of variance to be significant at the .01 level of confidence.

4. Students in science and mathematics used considerably fewer indirect activities than did students in the humanities.
5. Students in foreign language made more use of the direct categories than did students of other academic areas. They also made more use of the student talk categories.
6. Students in science and mathematics, and in practical arts, used more directed practice and more teacher demonstration than did students in other academic areas.
7. The i/d ratio (indirect Categories 1, 2, and 3 divided by the direct Categories 7, 8, and 9) of the experimental students as a group was significantly higher than was the i/d ratio of the control group. The difference was significant at the .01 level. In other words, the experimental students used more praise and reward and accepted and used the ideas of their students more, while using less corrective feedback, commands, and criticism than did the control group.
8. The significantly higher i/d ratio of the experimental student was found to be directly attributable to the experimental program.
9. The experimental students in the humanities used more praise, accepted and used the idea of the students more, and had a higher i/d ratio than did the control students in the humanities. The differences were significant at the .02, .01, and .001 levels of confidence respectively.
10. An examination of the total matrices of the experimental and control students in the humanities revealed that the experimental

students used the following patterns of teaching more frequently than did the control group:

a. used more extended use of acceptance of ideas
b. acceptance of students' ideas was more often followed by student talk
c. used more extended use of teacher questions
d. were less likely to command the student to answer the questions asked
e. teacher questions were more often followed by student talk
f. used more extended answering of student questions
g. were more likely to have student talk following teacher questions
h. were more likely to accept the students' ideas following student talk

C. Comparison of Grades in Student Teaching

Student Teachers who had completed the experimental program earned 46 A's and 16 B's, whereas the students of the control group earned 29 A's, 18 B's, 5 C's, and one D. The mean grade point average of the experimental students was 3.74 as compared to 3.41 earned by the control group. The t-ratio computed on the difference of the means was significant at the .005 level.

D. The National Teacher Examination

The Common Examinations of the National Teachers Examinations were first administered October 2, 1965, approximately two weeks after the project was begun in mid-September. The Common Examinations were reported in three parts; General Education, Professional Education, and the total score. No significant differences were found between the experimental and the control groups on the initial administration of the test.

The National Teachers Examination was administered on a re-test basis on January 7, 1967, at the conclusion of the project to determine whether significant differences existed on scores made on either the General Education or Professional Education section which might be attributed to the experimental program. The mean scores of the pre- and post-tests, the gain scores, t-ratios, and levels of significance of the difference of scores between the experimental and the control groups have been presented in Table III.

On the General Education section the experimental group made a mean gain score of 5.298 and the control group made a gain of 5.292. The difference was not significant. On the Professional Education section, the experimental group made a mean gain of 16.632 and the mean gain for the control group was 24.418. The difference in gain of 7.775 was significant at the .05 level. On the gain score for the total Common Examination, the experimental group had a mean gain of 21.930, and the control group had a mean gain of 29.708. The difference was not statistically significant.

It is interesting to note that both the experimental and the control groups exceeded the 60th percentile on the national form for college seniors on the General Education section and on the total Common Examinations. On the Professional Education section, the experimental group slightly exceeded the 50th percentile and the control group exceeded the 60th percentile of the national form.

Table III. The means, gain scores, t-ratios, and level of significance of the pre- and post-test scores of the experimental and control groups on the common examinations of the national teachers examination.

	Experimental Mean			Control Mean Scores			Total Gain		t-ratio on Gain	p
	Pre	Post	Gain	Pre	Post	Gain	Exp.	Cont.		
General Education	390.211	395.509	5.298	382.854	388.146	5.292	5.298	5.292	.0014	n.s.
Professional Education	221.877	238.509	16.632	224.333	248.750	24.417	16.632	24.417	2.097	.05
Total Scores	612.008	634.018	21.930	607.187	636.895	29.708	21.930	29.708	1.280	n.s.

18

CONCLUSIONS

A. General Conclusions

As a result of the experimental study, five major conclusions were drawn.

1. There was a signficiant difference in the teaching behavior of students enrolled in the control program as measured by independent observers using the Classroom Observation Record. The experimental group received the more desirable behavior ratings.
2. There was a significant difference in the behavior of the pupils of both the experimental and control students as measured by independent observers using the Classroom Observation Record. The more desirable behavior ratings were given the pupils of the experimental teachers.
3. There was a signficiant difference in the teaching pattern of the experimental and the control students as measured by independent observers using a sixteen category system of interaction analysis. The experimental group was found to use signficantly more indirect activity.
4. Grades earned in student teaching were significantly higher for the experimental students than were those of the control students.
5. Significantly higher scores were made on the Professional Education section of the National Teachers Examination by the control students than were made by the experimental students.

B. Related Conclusions

The data examined in this study provided no evidence that the possession of factual information about the professional content of teacher education was sufficient to alter teaching behavior. In fact, evidence to the con-

trary was indicated in that the students of the control group learned more facts as measured by the National Teachers Examination than did those of the experimental group. Yet their teaching behavior tended to be more traditional and less desirable as judged by qualified independent observers. Consequently, the following related conclusions seem justified:

1. The possession of factual information about professional content does not necessarily commit the teacher to actions consistent with that information.
2. Behavioral changes in prospective teachers can be more readily effected by programs of professional education which stress direct involvement of the prospective teacher in the teaching-learning process through meaningful laboratory experiences which are made relevant to content and theory.
3. Prospective teachers can be sensitized to the use of certain desirable teaching actions such as the use of praise and the acceptance of students' ideas through a planned professional program utilizing demonstration, observation, and participation.

CONCLUDING STATEMENT CONCERNING THE EXPERIMENTAL PROGRAM

The behavioral change evidenced by the experimental group was primarily a result of the experimental program of teacher education. Permeating that program was a process using extensive democratic involvement. The process, although composed of many component parts, seemed to have a composite effect as a prime influencer of the teaching behavior of the experimental students. The process, as defined by the investigators, was a combination of long known and generally acceptable principles of human relations combined with cognitive field learning theories. The process was characterized by (1) constant effort to reduce tensions and threats in the classroom, (2) persistent effort to recognize and use principles of good human relations based

on a feeling for individual worth and dignity, (3) efforts to assure internal motivation rather than external or imposed motivation, and (4) constant use of student involvement in the teaching-learning process through problem solving, free discussion and seminars, and laboratory experience of observation and participation.

Although the statement is subjective and difficult to validate conclusively, the investigators have agreed that, in their opinion, the democratic involvement process used in the experimental program was the most significant factor in influencing the behavior of the experimental students.

The second study, ''Teaching Experience as a Modifier of Teaching Behavior'' was specifically designed to examine the changes in teacher behavior exhibited during student teaching and those behaviors exhibited during the last three weeks of the subjects' first year of teaching. The specific behaviors examined were assessed by the Classroom Observation Record which included four dimensions of teacher behavior, and the teacher behaviors which could be examined through a 16-category system of interaction analysis.

The subjects were 50 secondary teachers who were completing their initial year of teaching. All of the subjects had been participants in a previous research study which established the ''pre'' data on teaching behaviors. That is to say that during the student teaching experience in the last semester of their senior year three administrations were made of the Classroom Observation Record and three 20-minute sessions of interaction analysis were conducted. All data were collected by a team of six independent observers who held the highest degrees in their field and who were especially trained to administer the COR and the system of interaction analysis.

The previous research of which the subjects of this study were participants was conducted under a basic research grant from the Bureau of Research of the U.S. Office of Education.[9] The previous study accepted the results of research by Flanders, Amidon, and others which presented evidence that teachers who used more indirect teacher influence tended to teach more effectively and had fewer disciplinary problems than did more direct teachers. Consequently, the study attempted to provide evidence that pre-service secondary teachers could be sensitized to the use of indirect teacher influence in teacher training programs. That assumption was tested through the establishment of

---

[9]Sandefur, Op Cit.

an experimental program of professional education which emphasized indirect influence through familiarization with interaction analysis, micro-teaching, observation, participation and seminars. The resultant behaviors of the experimental group were significantly different from those exhibited by a randomly selected control group who were exposed to the conventional professional education courses. The differences were significant generally at the .01 level of significance.

Of the 50 participants of the present study, 25 were members of the former experimental group and 25 were members of the control group. Since the selection of the participants was based on the use of all the participants of the former study who were teaching in Kansas and available, it was considered a bonus to find the exact division between experimental and control subjects and it was considered appropriate to treat them statistically as sub-groups in order to determine if the initial differences had diminished as would be expected. Consequently, the 25 who were former members of the experimental group were designated as Group A and the former control group was designated Group B. The composite of the ratings of Group A and B was used to examine the behavioral changes of the participants which might reasonably be attributed to the results of one year of teaching experience.

Two hypotheses and three questions were formulated to be tested by the experimental design:

1. Hypotheses

   To further delineate the problem, the following hypotheses were formulated to be tested by the Classroom Observation Record as the measure of teacher behavior.

   a. There are no significant differences in the teaching behavior of secondary teachers completing their first year of teaching when compared to their teaching behavior exhibited during student teaching.

   b. There are no significant differences in the teaching behaviors exhibited at the end of the first year of teaching experience between 25 teachers who displayed highly indirect and democratic influence in student teaching and 25 teachers who displayed more direct, authoritarian behavior during student teaching.

2. Questions

   To delineate the problem with respect to those teaching behaviors measured by interaction analysis the following questions were stated:

   a. How does the use of the sixteen categories of verbal behavior for 50 first year teachers compare with their use of the same behaviors during student teaching.

   b. How do the verbal behaviors of 25 first year teachers who exhibited more indirect teaching behavior in student teaching compare with the verbal behaviors of 25 first year teachers who exhibited more direct teaching behaviors during student teaching.

c. How do verbal behaviors in the classrooms of 50 first year teachers compare with the verbal behaviors in the classrooms where they were student teachers as measured by:

1. the I/D ratio
2. the revised I/D ratio
3. the indirect/student talk ratio
4. the direct/student talk ratio

B. Findings

All findings were derived from data collected through the use of the Classroom Observation Record and the 16-category system of interaction analysis. The data revealed several significant differences between the teaching behaviors demonstrated during student teaching and those demonstrated at the end of the first year of teaching. Significant differences were observed between the two sub-groups.

1. Findings from the Classroom Observation Record:

a. At the end of the first year of teaching nine teaching behaviors of Group A were found to differ significantly at the .01 level of significance from those behaviors as exhibited during student teaching. Specifically, the teachers of Group A became significantly more responsible, more understanding, more kindly, taught with more originality, were judged to be more attractive, more poised, more confident, more mature and integrated, and demonstrated more breadth in teaching.

b. At the end of the first year of teaching, five teaching behaviors of Group B were found to differ significantly. At the .05 level

Table 4 A comparison of mean ratings, t-values and the significance of the student teacher and experienced teacher ratings on the Classroom Observation Record for Group A.[1]

BEHAVIOR	Mean Rating		t	p
	Pre	Post		
PUPIL BEHAVIOR				
1. Apathetic–Alert	5.480a	5.720	1.169	N.S.
2. Obstructive–Responsible	5.667	5.933	1.380	N.S.
3. Uncertain–Confident	5.413	5.627	1.186	N.S.
4. Dependent–Initiating	4.933	5.387	2.054	N.S.
TEACHER BEHAVIOR				
5. Partial–Fair	6.133	6.266	0.950	N.S.
6. Autocratic–Democratic	5.223	5.560	1.469	N.S.
7. Aloof–Responsive	5.587	6.173	3.343	.01
8. Restricted–Understanding	5.627	6.133	2.751	.05
9. Harsh–Kindly	5.520	6.187	2.916	.01
10. Dull–Stimulating	5.173	5.560	1.839	N.S.
11. Sterotyped–Original	4.267	4.960	3.005	.01
12. Apathetic–Alert	5.640	5.907	1.544	N.S.
13. Unimpressive–Attractive	5.960	6.373	2.806	.01
14. Evading–Responsible	5.800	6.173	1.907	N.S.
15. Erratic–Steady	6.093	6.333	1.834	N.S.
16. Excitable–Poised	5.933	6.387	3.185	.01
17. Uncertain–Confident	5.920	6.360	2.958	.01
18. Disorganized–Systematic	5.760	6.093	1.774	N.S.
19. Inflexible–Adaptable	5.387	5.747	1.817	N.S.
20. Pessimestic–Optimistic	5.787	6.080	1.656	N.S.
21. Immature–Integrated	5.413	6.013	3.499	.01
22. Narrow–Broad	4.893	5.720	4.488	.001

1. Group A represents a sub-group of 25 participants of a previous study in which they were encouraged to use indirect teacher influence.

a. Mean ratings above 4.0 describe the behavior listed at the right.

Table 5 A comparison of the mean ratings, t-values, and significance of the student teacher and experienced teacher ratings on the Classroom Observation Record for Group B.

BEHAVIOR	Mean Rating		t	p
	Pre	Post		
PUPIL BEHAVIOR				
1. Apathetic–Alert	4.933	5.000	0.271	N.S.
2. Obstructive–Responsible	5.387	5.440	0.226	N.S.
3. Uncertain–Confident	4.747	4.787	0.177	N.S.
4. Dependent–Initiating	4.293	4.413	0.491	N.S.
TEACHER BEHAVIOR				
5. Partial–Fair	5.760	6.253	3.385	.01
6. Autocratic–Democratic	4.720	4.760	0.167	N.S.
7. Aloof–Responsive	5.427	5.680	1.498	N.S.
8. Restricted–Understanding	5.560	5.600	0.240	N.S.
9. Harsh–Kindly	5.560	5.760	1.033	N.S.
10. Dull–Stimulating	4.880	4.907	0.127	N.S.
11. Sterotyped–Original	3.867a	4.000	0.494	N.S.
12. Apathetic–Alert	5.413	5.453	0.219	N.S.
13. Unimpressive–Attractive	5.893	6.160	1.867	N.S.
14. Evading–Responsible	5.493	5.813	1.545	N.S.
15. Erratic–Steady	5.680	6.080	2.418	.05
16. Excitable–Poised	5.627	6.160	2.932	.01
17. Uncertain–Confident	5.520	6.160	3.670	.001
18. Disorganized–Systematic	5.680	5.813	0.717	N.S.
19. Inflexible–Adaptable	5.067	5.280	1.053	N.S.
20. Pessimistic–Optimistic	5.600	5.907	1.782	N.S.
21. Immature–Integrated	5.187	5.400	1.088	N.S.
22. Narrow–Broad	4.667	5.133	2.229	.05

a. Mean ratings below 4.0 describe the behavior listed at the left whereas ratings above 4.0 describe the behavior listed at the right.

Table 6 A comparison of the mean ratings, t-values and significance of the student teacher and experienced teacher ratings on the Classroom Observation Record for the combined Groups A and B.

BEHAVIOR	Mean Rating Pre	Mean Rating Post	t	p
PUPIL BEHAVIOR				
1. Apathetic–Alert	5.207	5.360	0.936	N.S.
2. Obstructive–Responsible	5.527	5.687	1.041	N.S.
3. Uncertain–Confident	5.067	5.207	0.925	N.S.
4. Dependent–Initiating	4.613	4.900	1.677	N.S.
TEACHER BEHAVIOR				
5. Partial–Fair	5.946	6.260	3.073	.01
6. Autocratic–Democratic	4.960	5.147	1.079	N.S.
7. Aloof–Responsive	5.507	5.927	3.407	.001
8. Restricted–Understanding	5.593	5.867	2.173	.05
9. Harsh–Kindly	5.540	5.973	2.882	.01
10. Dull–Stimulating	5.027	5.233	1.367	N.S.
11. Stereotyped–Original	4.067	4.480	2.270	.05
12. Apathetic–Alert	5.533	5.673	1.103	N.S.
13. Unimpressive–Attractive	5.927	6.267	3.312	.01
14. Evading–Responsible	5.647	5.993	2.418	.05
15. Erratic–Steady	5.887	6.207	2.992	.01
16. Excitable–Poised	5.780	6.273	4.247	.001
17. Uncertain–Confident	5.720	6.260	4.668	.001
18. Disorganized–Systematic	5.713	5.947	1.757	N.S.
19. Inflexible–Adaptable	5.227	5.513	2.003	.05
20. Pessimistic–Optimistic	5.693	5.993	2.429	.05
21. Immature–Integrated	5.300	5.707	3.068	.01
22. Narrow–Broad	4.780	5.427	4.576	.001

Table 7 A comparison of mean ratings, t-values, and significance of student teacher and experienced teacher ratings on the Classroom Observation Record for Pupil Behavior, Teacher Behavior, and Total Behavior.

GROUP	BEHAVIOR	Pre Test	Post Test	t	p
A	Pupil	21.40	22.67	1.224	N.S.
	Teacher	100.08	108.00	2.137	.05
	Total	121.48	130.67	2.085	.05
B	Pupil	19.41	19.64	0.240	N.S.
	Teacher	95.56	100.32	1.360	N.S.
	Total	114.97	119.96	0.930	N.S.
TOTAL	Pupil	20.41	21.17	0.919	N.S.
	Teacher	97.69	104.16	2.420	.05
	Total	118.10	125.23	1.969	N.S.

Table 8 An analysis of Covariance on Pupil Behavior of the Classroom Observation Record between Groups A and B.

SOURCE	DF	SS adj.	MS adj.	F	p
Between Group	1	49,088.398	49,088.398	2.632	N.S.
Within Group	47	876,490.080	18,748.725		
TOTAL	48	925,578.478			

Table 9 An analysis of covariance on Teacher Behavior of the Classroom Observation Record between Groups A and B.

SOURCE	DF	SS adj.	MS adj.	F	p
Between Group	1	1519.8764	1519.8764	13.942	.01
Within Group	47	5123.6567	109.0139		
TOTAL	48	6443.5331			

Table 10 An analysis of covariance on the Classroom Observation Record, total instrument, between Groups A and B.

SOURCE	DF	SS adj.	MS adj.	F	p
Between Group	1	1,029,368	1,029,368	5.179	.05
Within Group	47	9,341,809	198,761		
TOTAL	48	10,371,177			

of significance the teachers were found to be more steady as opposed to erratic, and more broad as opposed to narrow in teaching content. At the .01 level of significance, the teachers of Group B were found to demonstrate more evidence of fairness as opposed to partiality, more poise, and more confidence.

c. For the total group, 14 of the 18 teacher behaviors were found to have changed significantly at the end of the initial teaching year. The categories of behavior in which no significant change was found were: autocratic-democratic, dull-stimulating, apathetic-alert, disorganized-systematic.

d. For both Groups A and B and for the total group, no significant difference were found in the four categories of pupil behavior.

e. The change of ratings on the 18 categories of teacher behaviors between the pre and post administration was significant at the .05 level for Group A and for the total group. The change for Group B was not found to be significant.

f. When an analysis of covariance was applied to change in teacher behavior between Group A and B, using the pre tests as a covariate, the difference was found to be significant at the .01 level. The difference was in terms of more desirable ratings for Group A.

g. The analysis of covariance applied to all 22 behaviors, including pupil behavior, between Groups A and B, has indicated the change was significant at the .05 level.

2. Findings from interaction analysis

   a. In categories 1 through 5 which indicate indirect teacher influence, Group A increased their indirect influence by 0.39 per cent over that exhibited during student teaching.

   b. Group A, however, decreased their use of categories 6, 7, 8, and 9, the direct influence categories, by 4.33 per cent.

   c. Student talk increased for Group A by 1.17 per cent.

   d. Non-verbal activities increased by 5.83 per cent in Group A, primarily as a result of increased directed practice.

   e. Group B increased the use of indirect categories 1–5 by 1.21 per cent and decreased the direct categories 6–9 by 8.02 per cent. They increased student talk by 4.57 per cent. Student talk in response to the teacher increased by 3.66 per cent while student talk initiated declined by 1.41 per cent.

   f. For the total group, indirect activity increased by 1.78 per cent, direct activity decreased by 6.51 per cent, and student talk increased by 3.20 per cent.

   g. Group B experienced approximately twice as much change in extended direct teacher talk (9.04%) as did Group A (4.09%). Both groups diminished the amount of extended direct influence by 6.55%.

   h. The I/D ratio increased for all groups indicating that the proportion of indirect activities to direct activities increased.

   i. When the revised I/D ratio was determined, (categories 1, 2, 3) it was found that Group A increased the ratio from 2.62

Table 11 A comparison of the student teacher and experienced teacher mean percentage of tallies in each of the 16 categories per hour of observation for participants in Group A[1].

AREA	No. CATEGORY	Percentage of Tallies		Difference	Percentage of Tallies by Area[4]
		Pre[2]	Post[3]		
INDIRECT INFLUENCE	1. Accepts Feeling	0.42	0.33	−0.09	
	2. Praise and Reward	0.85	0.67	−0.18	
	3. Accepts Ideas	13.16	12.78	−0.38	0.39
	4. Asks Questions	7.94	7.71	−0.23	
	5. Answers Questions	4.15	5.42	1.27	
DIRECT INFLUENCE	6. Lectures	23.27	20.39	−2.88	
	7. Corrective Feedback	0.69	0.55	−0.14	
	8. Gives Directions	4.35	3.10	−1.25	−4.33
	9. Criticizes	0.49	0.55	−0.06	
STUDENT TALK	10. Student Talk, Response	13.88	14.51	0.63	
	11. Student Talk, Initiated	4.94	4.97	0.03	1.17
	12. Student Questions	3.76	4.27	0.51	
NON−VERBAL	13. Directed Practice	14.70	19.74	5.04	
	14. Silence	3.63	1.81	1.82	
	15. Demonstration	3.08	2.05	−1.03	5.83
	16. Confusion	1.14	1.13	−0.01	

1. Group A represents a sub-group of 25 participants who had participated in a previous research study in which they were encouraged to use indirect teacher influence.

2. Data collected during student teaching.

3. Data collected during last month of the initial year of teaching.

4. Categories 1−5 represent indirect teacher influence.
   Categories 6−9 represent direct teacher influence.
   Categories 10−12 represent student talk.
   Categories 13−16 represent non−verbal behavior.

Table 12 A comparison of the student teacher and experienced teacher mean percentage of tallies in each of the 16 categories per hour of observation for participants of Group B.[1]

AREA	NO. CATEGORY	Percentage of Tallies		Difference	Percentage of Tallies by Areas
		Pre_2	$Post_3$		
INDIRECT INFLUENCE	1. Accepts Feeling	0.48	0.32	−0.16	
	2. Praise and Reward	0.51	0.65	0.14	
	3. Accepts Ideas	9.02	8.08	−0.94	1.21
	4. Asks Questions	5.63	5.90	0.27	
	5. Answers Questions	3.48	5.38	1.90	
DIRECT INFLUENCE	6. Lectures	25.79	17.66	−8.13	
	7. Corrective Feedback	0.89	1.00	0.11	
	8. Gives Directions	6.01	4.90	−1.11	-8.02
	9. Criticizes	0.53	0.81	0.28	
STUDENT TALK	10. Student Talk, Response	12.14	15.80	3.66	
	11. Student Talk, Initiated	4.55	3.14	−1.41	4.57
	12. Student Questions	2.61	4.93	2.32	
NON-VERSAL	13. Directed Practice	21.02	24.60	3.58	
	14. Silence	3.54	2.61	−0.93	
	15. Demonstration	3.09	1.69	−1.40	3.06
	16. Confusion	0.70	2.51	1.81	

1. Group B represents a sub-group of 25 participants who completed a regular teacher–education curriculum and may be expected to exhibit typical teaching behavior.
2. Data collected during student teaching.
3. Data collected during last month of initial year of teaching.

Table 13 A comparison of the student teacher–experienced teacher mean percentage of tallies in each of 16 categories per hour of observation of 50 first year secondary teachers.

AREA	NO. CATEGORY	Percentage of Tallies		Difference	Percentage of Tallies by Areas[4]
		Pre[2]	Post[3]		
INDIRECT INFLUENCE	1. Accepts Feeling	0.45	0.32	−0.13	
	2. Praise and Reward	0.68	0.66	−0.02	
	3. Accepts Ideas	11.10	10.42	0.32	1.78
	4. Asks Questions	6.79	6.81	0.03	
	5. Answers Questions	3.82	5.40	1.58	
DIRECT INFLUENCE	6. Lectures	24.53	19.02	−5.51	
	7. Corrective Feedback	0.79	0.78	−0.01	−6.51
	8. Gives Directions	5.17	4.01	−1.16	
	9. Criticizes	0.51	0.68	0.17	
STUDENT TALK	10. Student Talk, Response	15.01	15.16	2.15	
	11. Student Talk, Initiated	4.52	4.05	−0.47	3.20
	12. Student Questions	3.09	4.60	1.51	
NON-VERSAL	13. Directed Practice	17.34	22.18	4.35	
	14. Silence	3.59	2.21	−1.38	
	15. Demonstrations	3.09	1.85	−1.25	2.62
	16. Confusion	0.92	1.82	0.90	

1. Data collected during student teaching.
2. Data collected during the last month of the initial year of teaching.

Table 14 A pre–post comparison of the percentage of tallies in area A through H.

AREA DESCRIPTION	GROUP A			GROUP B			COMBINED GROUP		
	Pre[1]	Post[2]	Dif.	Pre	Post	Dif.	Pre	Post	Dif.
A. Extended Indirect	13.90	13.89	0.01	10.10	9.07	−1.03	12.01	11.47	−0.54
B. Extended Direct	22.25	18.16	−4.09	26.72	17.68	−9.04	24.47	17.92	−6.55
C. Student talk Followed By Teacher talk	9.61	10.85	1.24	6.68	9.21	2.53	8.16	10.03	1.87
D. Extended Student talk	10.50	9.12	−1.38	10.19	9.84	−0.35	10.35	9.48	−0.87
E. Teacher talk Following Student talk	9.89	11.30	1.41	7.26	9.91	2.65	8.58	10.61	2.03
F. Silence Following Teacher or Student talk	5.97	7.13	1.16	5,86	7.94	2.08	5.91	7.54	1.63
G. Extended Silence	15.37	16.42	1.05	21.72	20.87	−0.85	18.53	18.65	0.12
H. Teacher or Student Talk Following Silence	5.91	7.07	1.16	5.81	7.82	2.01	5.86	7.45	1.59

1. Data collected during student teaching.

2. Data collected at the end of the first year of teaching.

Table 15 Interaction analysis Ratios for Groups A, B, and the combined groups.

RATIO	GROUP A		GROUP B		TOTAL	
	Pre	Post	Pre	Post	Pre	Post
INDIRECT–DIRECT RATIO 1,2,3,4,5, 6,7,8.9	0.92	1.09	0.57	.084	0.74	0.96
REVISED INDIRECT–DIRECT RATIO 1,2,3, 7,8,9	2.62	3.27	1.35	1.35	1.89	2.09
INDIRECT–STUDENT TALK RATIO 1,2,3,4,5, 10,11,12	1.18	1.13	0.99	0.85	1.10	0.99
DIRECT–STUDENT TALK RATIO 6,7,8,9, 10,11,12	1.30	1.04	1.93	1.04	1.50	1.03

The extent to which the ratio of indirect verbal activity to direct verbal activity changed during the first year of teaching is easily read from Table 13. The I/D ratio for Group A changed from .92 to 1.09 indicating more indirect activity in proportion to direct activity. An even greater change in I/D ratio occurred in Group B although Group B post ratio never equalled the pre-ratio of Group A.

The shift toward more indirect verbal activity in proportion to the direct verbal activity is shown to be even more pronounced when a revised I/D ratio was computed. Group A with a revised I/D ratio of 3.27 clearly indicates the teachers' use of indirect categories 1, 2, and 3 to be more than three times more frequent than their use of the direct categories 6, 7, and 8. Group B, in contrast, used indirect categories one 1.35 times more frequently than the direct categories. The total group increased their revised I/D ratio from 1.89 to 2.09, indicating increased use of indirect categories in proportion to the direct categories.

2. Conclusions drawn from interaction analyses:

   a. Teachers seem to reduce the percentage of time spent lecturing as a result of experience.

   b. Experienced teachers tend to spend more time in directed practice than do inexperienced teachers.

   c. The ratio of indirect verbal activity appears to increase with experience.

   d. Extended direct influence appears to diminish as a result of experience.

   e. Teachers sensitized in pre-service professional programs to the use of indirect teacher influence, specifically to the acceptance of feeling, praise and encouragement, and acceptance of students ideas, seem to expand the use of these categories as compared to their use of direct categories of directions, criticisms, and corrective feedback.

3. General Conclusions

   a. Certain teaching behaviors are significantly modified by teaching experience, consequently hypothesis number 1 was rejected.

   b. Significant differences existed between the two sub-groups A and B, therefore, hypothesis number 2 was rejected.

The Integration of Psychoanalytic Child Psychology With Elementary Teacher Education

The third study dealing with psychoanalytic child psychology can receive only limited treatment in this paper, both because of length and the fact that although all data have been collected, the final report has not been written. This presentation will be a capsule summation of the project and a preview of the findings.

In 1967, immediately after the completion of the secondary project, faculty members from Kansas State Teachers College and staff members of the Division of School Mental Health of the Menninger Foundation began discussions of a project designed to introduce certain psychoanalytic concepts and principles designed to aid pre-service elementary teachers to understand children and the process of childhood into the teacher education program. Assistance for the planning stage was obtained from the Kettering Foundation and the planning of the project consumed one year. The operational stage, consisting of two academic years was supported by the Esso Foundation.

The design of the project was that there should be four experimental groups of approximately 30 students each. The experimental groups were to be instructed using the methodologies of the secondary project, i.e. threat-free, flexible structure, integrated content with laboratory or clinical experiences, readings, no lecture, and other techniques generally associated with indirect teaching. In addition, three of the experimental groups would have the benefit of a psychoanalyst one day each week who would present psychoanalytic theories and principles designed to provide understandings of children. All experimental groups were to be compared with a control group of sixty students who had completed the conventional elementary teacher preparation program. Therefore, a three-way comparison was provided: sixty students taught with indirect methodologies, and sixty students who completed a conventional program.

Again, the project was evaluated by independent observers using basically the same techniques described in the previous projects. Interaction analysis and classroom observation records were employed to assess teaching behaviors.

Perhaps the most revealing data were found relevant to the Classroom Observation Record as recorded by the three observers and reported in the following table.

Table 16.[14]

Group A – Group C Experimental Groups, With Analysts	Group B – Group D Experimental Groups, No Analysts	Group E Control Groups

T-test Between Group-Pairs, Observation Record (summed over three observers and eleven concepts)

Group-Pair	df	t-ratio	Group-Pair	df	t-ratio
A – B	45	0.71*	B – D	42	0.36*
A – C	46	0.61*	B – E	43	3.40**
A – D	44	0.39*	C – D	43	0.24*
A – E	45	2.72**	C – E	44	3.37**
B – C	44	0.11*	D – E	42	3.19**

* Non-significant $p > .05$
** $p < .01$

All three observers indicated the same relationships among the five groups on each of the eleven concepts. That is, it made no difference which concept was being considered, each observer gave the two experimental groups as well as the two placeboid groups a significantly higher rating than they gave to the control group. Also, no observer detected any significant difference among the four groups – the two experimental groups and the two placeboid groups.

[14] Adapted from data prepared by Dr. Gerry Dorathy, Assistant Professor, Kansas State Teachers College.

Conclusion

The presentation as it has been made does not lend itself to extensive or highly specific conclusions. The presentation was made to emphasize the point that certain specifically designed teacher education programs can and do significantly change the teaching behaviors of teacher education students.

END

DEPT.OF HEALTH EDUCATION AND WELFARE

U.S. OFFICE OF EDUCATION

ERIC

DATE FILMED

6 24 71